Toward a New Epistemology for Medical Science

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ABSTRACT: The use of race remains common at all levels of medical science and practice, including education, research, and care delivery. There are ongoing vigorous debates about the validity of the manner in which race is used. Unfortunately, when one looks closely at the manner in which race is used, what one often finds is in fact racism. This article explores some of the ways in which the development of the concept of race as a biological construct, was used to justify racism, and shaped the early development of scientific thought. This historical perspective is used to elaborate the ways in which those seminal ideas continue to distort medical research, education, and care delivery, and perpetuate health disparities.

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In the general theory of relativity, Albert Einstein contended that because of gravity, massive bodies have the ability to curve space (and time). Space is distorted and time does not flow at the same rate in the presence of large gravitational forces. Racism has had a similar effect on the structure of the science, as well as the practice of medicine that has gone unaddressed for far too long.

What we take as settled Western science and knowledge is, to a considerable degree, the byproduct of the norms and practices that underscore social or public thought. Racism has been (and continues to be) an integral part of social and public thought. As such, the way science and medicine see the world requires reconsideration of fundamental assumptions that include the bearing of racism on reasoning. In the absence of revolutionary thinking, the structure of scientific research and scholarship is referential. New information is built and evaluated on the scaffold of old knowledge and its acceptance is predicated on the extent to which it reinforces those references to prior knowledge. The requirement of presenting new information in the context of prior knowledge represents a de facto expectation that the soundest of ideas emerge from the frame of existing ideas. In its most extreme expression, new knowledge becomes derivative of, and is potentially distorted by the gravitational force of older ideas.

One glaring example of this distortion is the fact that despite the work of thinkers like Franz Boas in the early part of the 20th century that challenged the biological basis of race and stressed the importance of the social environment, it was not until the latter part of the century (with strong evidence from social epidemiology) that factors that are now recognized as social determinants of health began to gain currency. Prior to this, health disparities were all too often attributed to the decisions and behavior of individuals and communities. Such conclusions were the product of empirical evidence distorted by deeply-engrained prejudice and racism. The historical mass of racism, in particular, exerts a strong gravitational pull and distorts how we conduct scholarship and develop new knowledge, and ultimately, how we diagnose and treat disease, and promote the health and well-being of individuals and populations.

In the basic and clinical sciences, the structure of old knowledge, and the culture in which it arises, exert a strong gravitational pull on newly developed knowledge. Scholars look at the Enlightenment as a period of great intellectual awakening. Enlightenment philosophers such as John Locke and Immanuel Kant gave us ideas of human freedom, individual rights, the principles of liberal democracy on which our nation was founded, the concept of original thought, empiricism, and the scientific method. They also used their revolutionary ideas of natural law, empiricism, and scientific inquiry to promote oppressive social policies and develop a hierarchy of race—a hierarchy based on phenotypic expression that created a rationale for
White supremacy, a hierarchy that provided justification for the exter-
nimation of indigenous peoples and promotion of chattel slavery. The ex-
tent to which the racism of Enlight-
enment philosophers tainted their other contributions continues to be
extensively debated.6 However, there
is no doubt that the concept of race
continues to distort medical knowl-
edge and practice to this day, to the
detriment of the health and well-be
ing of People of Color.

John Locke was one of the authors
of the Fundamental Constitutions of
Carolina. This document proposed a
feudal system of government for the
colony that became North and South
Carolina. This document legalized
White supremacy, and normalized
slavery.7 Locke authored a particular
 provision that specifically prevented
slaves from gaining their freedom by
converting to Christianity. It states:

> Slaves, of what Opinion or Religion
> Power and Authority over his Negro
> man of Carolina shall have absolute
> emptied from that civil dominion his
> master hath over him, but be in all
> other things in the same state and
> condition he was in before.5
>

A few sections later, the document
further emphasizes, “Every Free-
man of Carolina shall have absolute
Power and Authority over his Negro
Slaves, of what Opinion or Religion
soever.” For John Locke, White su-
premacy became the way to resolve
the inherent contradictions between
liberal democratic principles and co-
lonial capitalism and its reliance on
slave labor. The ideas of the Enlight-
enment philosophers gave voice to
secularism, reason, and scientific
thought, which in turn were used to
justify chattel slavery. Natural law,
through its application as a hier-
archical structure, only freed some
men. Those conveniently deemed in-
ferior, it bound to heritable explo-
itation.

There are also numerous exam-
amples of Immanuel Kant’s racism. In
his work in anthropology, he used
many newly-developed scientific
ideas to support the superiority of
Whites and the inferiority of other
populations. He contended, “The
white race contains all the motivat-
ing forces and talents within itself.” He
also stated,

> Humanity exists in its greatest per-
> fection in the white race. The yellow
> Indians have a smaller amount of
talent. The Negroes are lower and
> the lowest are a part of the Ameri-
can peoples.8
>

On a more practical level he ad-
vised,

> To beat slaves effectively ‘a cane
but it has to be a split one, so that
the cane will cause wounds large
enough that prevent suppuration
underneath the negroes thick skin.9
>

We find another example of the
pollution of science by racism in the
development of statistics. Early
fathers of statistics such as Karl
Pearson, who gave us the Pearson
correlation coefficient, and Ronald
Fisher who developed the concept of
statistical significance, were both eu-
genicists. They both actively and ag-
gressively used this newly developed
science to support eugenics. With
the calculation of statistical signifi-
cance, Fisher took the simple demonstra-
tion of mathematically-supported as-
ociations or dissimilarities between
variables and elevated them to the
status of causality. He used mathe-
umatical equations to project a ve-
ner of objectivity on the “science”
of eugenics. Fisher and Pearson used
mathematics to support preexisting
ideas of differences between popula-
tions of humanity. However, the fact
that one has measured something
does not mean that the conclusions
drawn are the truth, and the inability
to measure something does not
 guarantee that no difference exists.
Empiricism and objectivity are not
synonyms. Objectivity will never be
found in mathematical equations, no
matter how refined. Of note is the
fact that in 2016 the American Sta-
tistical Association (ASA) issued a
cautionary statement regarding the
value of statistical significance. In
part the statement read, “By itself, a
P value does not provide a good mea-
sure of evidence regarding a model
or hypothesis.”10 The ASA contended
that the establishment of homogene-
ity or inhomogeneity in data is not a
sound scientific exercise.

It should be noted that, just as
Fisher made the leap from correla-
tion to causality, we continue to do
the same in the practice of medi-
cine on a daily basis. The use of
race-based diagnostic and treatment
algorithms provide a convenient ex-
ample. The Society of Thoracic Sur-
geons uses a calculator to estimate
the risk of complications including
death to evaluate patients. The cal-
culator considers race, based on ob-
servations of differences in outcomes
between Black and non-Black pa-
tients. The consideration of race
places Black patients at higher risk
compared to white patients. Such as-
sessments use observed differences
based on race and raise them to the
level of causality, in the same man-
ner as Fisher described above. The
observed difference correlates with
race, so race is presumed to be the
cause.11 Another apt example is the
calculation of glomerular filtration
rate (GFR). The highly suspect pre-
sumption that African Americans
have a higher muscle mass results
in the calculation increasing the

is our view of nature in this context? Applying Heisenberg’s Uncertainty Principle, if we focus on the momentum of a causal process, we neglect the positions of individuals therein, ignoring the “who” of our study. What we study is the disease in the absence of the historical and current social context of patients’ experience. We measure weight, treat blood pressure, and monitor serum potassium levels, but for too long race has blinded us to the social determinants that underlie many patients’ disease risks and outcomes. Ours is a disease-based approach to health care that views individuals as cases and undervalues the sociocultural and humanistic aspects of patient care.14

In science, there is no answer that does not begin with a prior question. If the question is tainted with bias, then reason, mathematics, and statistics have no means of eliminating such a seminal cognitive error. The concept of race and racism have long distorted the development and application of scientific knowledge. It should be noted that unlike gravity, racism is not a fundamental force in nature as we perceive and experience it. Racism is a force that we conjure continuously in our thoughts, words, and deeds. It is imbedded in our politics and basic social structure.

Racism, as is the case with all the other “isms,” is rooted in a desire for superiority. Race in turn is the social hierarchy, masquerading as a biological construct, that is used to justify racism. The two cannot be separated. Whenever and wherever we use race, we evoke racism. Therefore, how does the use of race in medicine align with the oath to treat all people with dignity? Our experiences as health care providers demonstrate that the commission of ecological fallacies, as noted above, as long as race is part of our epistemology, racism will be embedded in our research, education, and clinical practice.

No individual researcher, educator, or clinician has the capacity to affect major changes in the social structure of their nation tomorrow. However, we do have the capacity to eliminate the distortion of racism from the science, teaching, and practice of medicine today. Until we do so, we will not comport ourselves in accordance with the letter or the spirit of the oath to which we have sworn solemnly, freely, and upon our honor.

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References


